

# J. THOS. RHAMSTINE AND THE FIRST ELECTRIC EXPOSURE METER

By Richard W. Holzman © 2008

This is a story about a long forgotten Detroit businessman who manufactured radio components and automotive accessories before marketing the first electric photographic exposure meter in 1931.

John Thomas Rhamstine (JTR) was born March 24, 1892 in Chattanooga, Tennessee to John S. Rhamstine (1864-1910) and Ella Farquhar (1865-1919). His father was a railroad freight agent and the family seems to have frequently moved around the country. According to the 1900 U.S. Census, they lived in Washington, D.C., later moving to Louisville, Kentucky where JTR attended the Manual Training High School. He was the associate editor of the high school newspaper when an article with his byline appeared in the *Louisville Evening Post*, January 15, 1910 about the school curriculum with the somewhat long title, "Art of Creation and Buzz of Machinery Lend Interest to Course at Manual School. Studies of the Students Are Made Lighter by the Healthful Exercise and Recreation Afforded in the Various Mechanical Departments. Woodworking, Forging, Engine Building, Joinery and Other Sorts of Kindred Trades are Taught in the Course of Four Years." He began:

The best education a young man can receive is that which will make him most keenly alive to his environment and all that is going on about him. It was not generally believed some years ago that the curriculum of association and analogy regarding practical machinery and the everyday trades could be introduced into the high schools, so that it would prove beneficial to the student. It was believed the inauguration of the technical arts would promote a tendency to disregard discipline and that the susceptibilities of the scholar for the academic courses would be overpowered and mechanics and literature would suffer. On the contrary, when the manual training course was finally established, after being brought in gradually, there was found a harmony through the schools such as had never existed before. The scholar became enthusiastic in his school duties; his problems in mathematics became footstones to his constructions in the shops, his mind, once dulled with the tedious academics, was animated with the varying manual courses, and his whole soul was stirred by more logical and simpler methods of teaching.

He then continued to describe the curriculum and the different courses that had definitely prepared him for the future.

His Draft Registration Card of June 1917 indicates that he was living in Chicago with his wife and aging mother. We next

find him in Detroit about 1919 as the sales manager of the Monarch Governor Company with his brother Chester F. Rhamstine (1903-1983) as a repairman. He then established his own business on East Larned between St. Aubin and Chene, and is listed in the 1921-1922 *Detroit City Directory* as "elect supplies," in 1923-1924 as "radio mfrs," and in 1925-26 as "radio apparatus." His earliest advertisement located in a radio related periodical was for a radio rheostat in the July 1922 issue of *QST*, a monthly publication of the American Radio Relay League, which was directed to amateur radio operators or "hams," where "qst" means "calling all stations." A patent search found that the rheostat was covered by U.S. Patent #1,449,249, filed August 8, 1922 and granted March 20, 1923 to JTR. His other patents were #1,490,432 for an electrical switch used to time appliances like a toaster and #1,516,060 for a horn-shaped telephone amplifier. It is not known if these last two items were ever manufactured.

**RHAMSTINE\***  
**Rheostat**



**\$1.75**  
Postage etc.

The Rhamstine\* Rheostat conveys instant and vivid conviction of value.

It is a new Rhamstine\* Product and aside from its original design and attractive appearance, it possesses these valuable features:

1. Compactness—the element ring is only 1 1/4" in diameter.
2. One hole for mounting—the bearing for the shaft also holds the rheostat frame.
3. Brush Contact—two stationary brushes make contact with the resistance element.
4. Air cooled.
5. Noiseless.

It is exceptionally well made, dependable and durable and quite advanced in design.

Ask your dealer to show you how it works.

*Illustrations upon request.*

Manufactured by  
**J. Thos. Rhamstine\***  
2152 E. Larned St. Detroit, Mich.  
\*Manufacturer of Radio Products

FIGURE 1. This is an early Rhamstine advertisement published in the July 1922 issue of *QST*. Note the asterisk following the Rhamstine name, which will be explained later.

Other advertisements were for a radio frequency transformer in 1923, the Victophone amplifier for phonograph or horn in 1923, a "B" type rectifier to eliminate a 22½ volt battery in 1925 and a tube booster to rejuvenate used radio tubes in 1925.

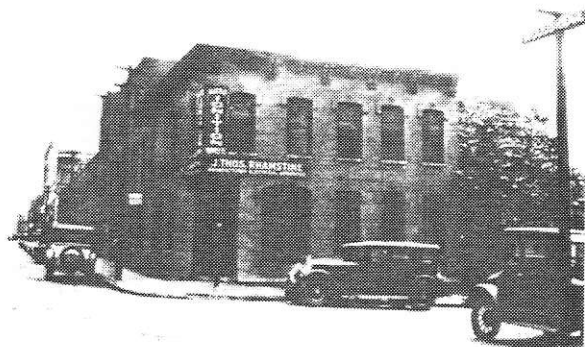


FIGURE 2. About 1924 JTR relocated to the corner of East Woodbridge and Beaubien which is today in the shadow of the Renaissance Center in downtown Detroit. The building was demolished years ago. The signs read Auto Ignition Supply Co. (do not know if Rhamstine was involved) and J. Thos. Rhamstine, Manufacturer Electrical Apparatus.

**More Pep for Old Tubes!**

Why throw away your old tubes—The Rhamstine® Tube Booster will renew life. It makes no difference whether you use 201-A or 199 type tubes, the Rhamstine® Tube Booster will renew life and will give them new snap and pep.

Works equally well on alternating current 110-120 volts, 50 to 100 cycles—the ordinary electric light current. You can pay for the booster in a short time by increasing and saving for your friends. Send no money, just sign the coupon and mail it.

**“B” Rectifier for your “B” Power Service**

gives you the finest, smoothest, most uniform rectification of any time always. Low in cost of operation, wonderful in results, attractive in appearance, a money saver and happy house possessor. It's better than a “B” Battery. Operates on any 110 volt A.C. circuit. You can use any tube out. Send no money, just when you get it, send it 3 days. If you're not voluntarily satisfied, purchase price will be refunded.

**Rhamstine® “B” RECTIFIER Only \$25**

**J. THOS. RHAMSTINE®**  
Radio and Electrical Products  
506 E. Woodbridge St. Detroit, Mich.

**Rhamstine® Tube BOOSTER Only \$6**

**Mail this Coupon To-Day**

J. Thos. Rhamstine® 130  
506 E. Woodbridge St., Detroit, Mich.  
Please send me your J. Tube BOOSTER at \$6. I will enclose C.O.D. subject to inspection. If I am not entirely satisfied with the “B” RECTIFIER, I will return it to you in five days and receive a refund of the full purchase price.

Name \_\_\_\_\_  
Address \_\_\_\_\_

★ Tested and approved by Radio Broadcast ★

FIGURE 3. This advertisement appeared in the October 1925 issue of *Radio Broadcast*. Note the star following Rhamstine's name.

The 1928-1929 *Detroit City Directory* listed JTR as “auto specialties,” but the range of products has not been researched fully. He did claim to invent the push-pull cigarette lighter in 1925, but his most enduring items were air horns. His own was called the Rams-Horn for automotive use and he did manufacture the Strombos “most powerful of all signals” for yachts and possibly other uses under license from the American Strombos Company of Philadelphia (now Buell, see [www.buellairhorns.com](http://www.buellairhorns.com)). Other products of unknown vintage were a cigar lighter that resembled a microphone and a needlephone loud speaker.

JTR seems to have been an amateur cinematographer, but as was common to all photographers exposure was a problem. In articles and ads, he would relate stories about wasting time squinting through a tube of an extinction meter or adjusting

scales on a calculator and still not obtaining correct exposure. Research into applications of selenium photocells was very active in the 1920s and JTR seems to have gotten involved in that as well. He sold the “Rhamstine Electronic Cell” and relays for the experimenter, and manufactured the “Electric Eye,” which was a cell and relay unit. All you needed was a light beam so that when something would interrupt the beam, the relay would trip. These led him to design and market the Electrophot in October 1931 as the first commercial electric photographic exposure meter and to make other models through 1941, when raw materials became unavailable due to the war. A full treatment of the meters will come later in this article.

**RHAMSTINE® ELECTRONIC CELL**

**PRICES**

ELECTRONIC CELL, complete with case	\$ 7.50
Light Sensitive Disc only	2.00
Light Source with special optical system (not illustrated)	10.75
Infrared Filter to fit Light Source	3.50

We can supply the following relays which are out of our manufacture and subject to the original manufacturer's guarantee:

Sensitive Relay	\$12.00
Auxiliary Relay	5.00

Manufactured by:  
**J. THOS. RHAMSTINE®**  
Division of Precision Instrument Company  
501 Beaubien Detroit, Mich.

**CHARACTERISTICS**

**INEXHAUSTIBLE LIFE**  
A dry-disc cell which converts light energy directly into electrical energy at no expense to the materials used in its construction and without battery or other source of aid.

**POWERFUL**  
Generates approximately 2 milliamperes in direct sunlight, when connected to a direct current milliammeter. Self-generated current is directly proportional to light intensity.

**DURABLE CONSTRUCTION**  
Exposure to strong light, or any climatic condition, does not affect its efficiency, nor is there any dissipation of its output through continued use. Exposing the plain lens over the face of the cell is all-metal construction, contains no liquids or gases, and with reasonable care lasts indefinitely. Size: 2 1/2" diameter, 1" thick. Equipped with two connection prongs which fit the standard I X radio tube socket. Finished in attractive enamel black. Also available with binding posts if specified.

**Light source** **Electronic cell** **Sensitive relay** **Auxiliary relay**

FIGURE 4. Four page brochure for the Rhamstine brand of selenium photocell.

A full-page article by Edward Beck in the *Detroit News*, July 30, 1933 titled “Rays from Sun Turned into Electricity—Old Sol Gets New Job, Detroit Expert Demonstrates How Light Can Generate Power, Makes Startling Predictions” shows

Rhamstine demonstrating how a selenium cell works. Beck states, "the chief use for day-disk generators is in photography. They enable the operator of a camera to gauge the exposure." Other industrial applications mentioned were in counting or sorting objects, photoelectric night-light and use as a door control. The main prediction was "that within a few years country homes and rural workshops will be lighted and powered by solar energy."

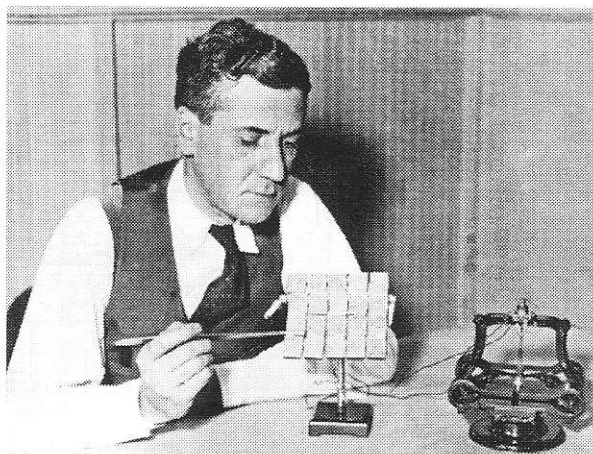


FIGURE 5. Rhamstine demonstrating how selenium cells could power a motor in 1935.

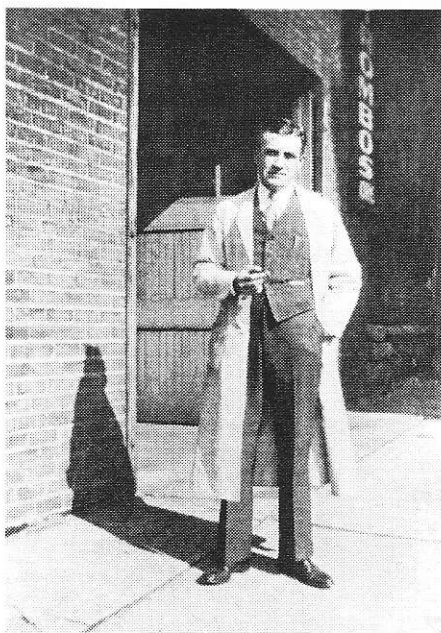


FIGURE 6. Rhamstine outside his shop in 1938. Note the Strombos Horns sign in the background.

JTR stated that "the Rhamstine plant manufactured electrical instruments for the Armed Services" from 1942 to 1945, as indicated in an unpublished chronology of his exposure meters. It is not known what was made, but the plant did repair exposure meters.

After the war, JTR sold the business to Adair (nothing is known about him as it is a common Detroit name) and his brother Chester Rhamstine, who seems to have always worked with him in Detroit. The Adair-Rhamstine Company made only the revised model 14A exposure meter from 1946 to about 1950-1951. JTR then moved to a citrus orchard in the Lower Rio Grande Valley near the city of Harlingen, Texas (the southern most point of Texas), but the venture was abandoned in 1949. An article in the *San Antonio Express Magazine*, March 3, 1949 described JTR demonstrating his solar motor in "Harness the Sun." In 1950 he married Josephine "Jo" Bedwell (March 27, 1911-September 1991) in nearby Nuevo Laredo, Mexico. She loaned me a scrapbook maintained by JTR, which is the source of Tom's photos and the newspaper clippings used here. From 1951 to 1973, JTR's new occupation was as an exposure meter repairman in a workshop attached to his Harlingen home.

### exposure meter repairs

Exposure meter repairs. Send any make. Prompt Service. Reasonable charges. The Rhamstine\* Co., Meter Div., Harlingen, Texas.

FIGURE 7. Classified ad that ran during a few 1954 issues of *Modern Photography*.

Rhamstine\* developed and marketed the FIRST photo-electric Exposure Meter - 1931 and advertised in all Photo and many National Magazines for ten years.

**THIS IS A HAND PRESS PROOF**  
*The Saturday Evening Post Philadelphia*

**SHARPSHOOTING FOR PHOTO FANS!**

**Now Low priced Rhamstine\* \$10 Exposure Meter.**  
For perfect pictures! Compact, its non-flicking dial requires no extra exposure counter for use with your film, camera! Now you can shoot any, 35mm and 16mm, 350' 811 in your camera. J. TRON, RHAMSTINE\*, 362 Broadview, Harlingen, Michigan (Lansing) - (Exclusive franchise opportunities, service)

35495 - Photo - 15 - October 9, 1936 - 18 Lubor

**EXPOSURE METER REPAIRS**

The Rhamstine\* Co. operates an efficient Exposure Meter Repair business, supervised by an experienced meter technician.

Many prominent photo dealers from coast to coast patronize our repair department. You can count on prompt attention to your meters, quick return shipment and reasonable charges.

Send ANY make, obsolete or current production, foreign or domestic to:

**THE RHAMSTINE\* COMPANY**  
Meter Division  
Box 289 Harlingen, Texas

Keep This Card Handy

FIGURE 8. A note by "Jo" Rhamstine on the back of this card states, "This card & others were sent to customers while we had the service of repair to exposure meters in Harlingen about 51 to 73."

The *Valley Morning Star* of Harlingen published an article on May 1, 1961, "New Emergency Traffic Control System Invented by Harlingenite," which described Rhamstine's invention which would allow emergency vehicles to use a radio transmitter that would change all the traffic signals to red. Although he applied for a patent (no such patent has been located), he had no plans to manufacture or market the system.

Another article about his solar motor and his past inventions



was published in the *Houston Chronicle*, September 1967, in which his novelty item was marketed. "But no one appeared interested enough to develop Rhamstine's tiny machine and it never caught on except as an eye-catcher for merchandising displays in store windows. Its solar cells set the small motor whirring in jewelry store windows and drugstores over the country and Rhamstine found himself in the novelty business with a big demand for the 'sun machine.' "

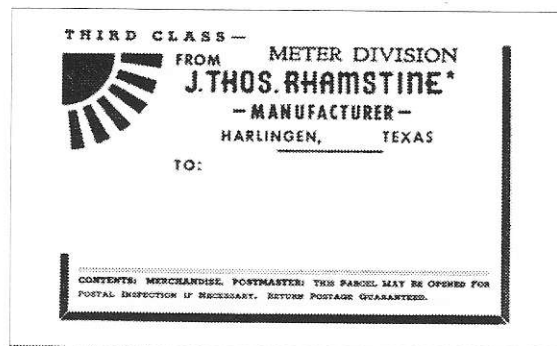


FIGURE 9. Note the sunbeams on this Rhamstine shipping label reflecting his interest in solar energy.



FIGURE 10. "Tom" repairing a meter in his workshop in 1968.

Around 1973, failing health caused JTR to stop all business activity. He died April 6, 1975. His obituary in the *Valley Morning Star*, April 7, 1975 began with the following:

Lest some people think John Thomas Rhamstine, who died in Harlingen this week, was just an exposure meter repairman, we would like to set the record straight. Rhamstine invented the light exposure meter used in

photography and other fields.

After a career as investor and manufacturer, he did settle in the Valley and do meter repair work.

We were told many years ago that before Harlingen people knew he did this kind of work that they would take their meters to a local photo dealer to be repaired. The dealer would bundle it up and send it to a firm in New York. The New York firm would bundle up the meter and send it to Rhamstine to be repaired. He would mail it back to the New York dealer who would again bundle it up and send it its Harlingen agent. And all the time, the man who wanted the repair done might have lived just across town from the man who did the work.

### ABOUT THE RHAMSTINE ELECTROPHOT METERS

**MODEL DH.** This was first described in *Home Movies*, October 1931, pages 544 & 548, a monthly publication of the American Cinema League directed to amateur cinematographers: "A radically new type of exposure meter makes its appearance this month, operating on the light sensitive cell principle. The idea has been advanced theoretically many times and cine workers have been promised that this principle would some time be brought to their aid in solving the vexing problem of exposure but the firm of J. Thos. Rhamstine, 501 East Woodbridge Street, Detroit, Michigan, is to be the first to make this principle available to the amateur. The Rhamstine Electrophot is entirely automatic in its operation and requires no visible judgement whatever on the part of the user." The article continued with details about the meter and its use.

The meter sold for \$35 or about \$475 in 2007 dollars based on a CPI (Consumer Price Index) calculation. Since this was during the depths of the Great Depression, it would seem that few amateurs could afford such an instrument. Additionally, it was only sold for about five months so few were actually made causing this to be a rare product.

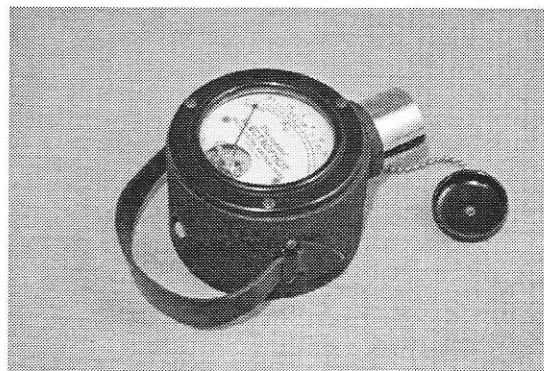


FIGURE 11. The Model DH is real hefty for an exposure meter weighing in at one pound, 3½ ounces without its two AA batteries and is 3½ inches in diameter and 2½ inches thick. The snout serves to keep stray light off the cell in order to cover the same area as a normal lens.

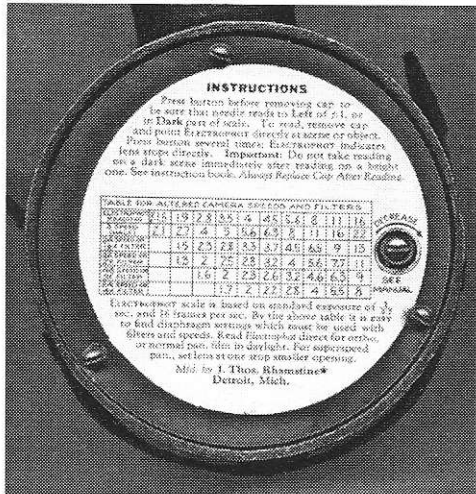


FIGURE 12. Instructions are on the backside of the Model DH meter along with a table for different frames/second camera speeds and filters. The cautionary points are just like those for cadmium sulfide cells introduced in 1960.

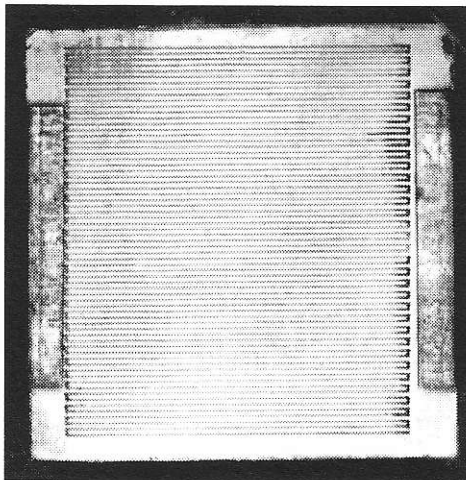


FIGURE 13. This is the photocell from a Model DH where a selenium line weaves back and forth to total about 42 inches. When light strikes the selenium, the resistance drops so that more current from the batteries flows to the microammeter that causes the needle to swing to the correct lens aperture.

**MODEL DHA.** The design has changed to a four-inch square meter that is 1 3/8 inches thick weighing about a pound with the extra feature of having a viewfinder.

**MODEL MS.** This model is identical to the DHA except that it used the "Rhamstine Electronic Cell," which required no batteries. Electrical current generated by the selenium cell drives a milliammeter, which read directly in f stops for regular film. Even though the battery compartment remains there was no

electrical connection. Although first noted in *American Photography*, December 1932, page 736 and adv. 25, all the photos of the meter were of the DHA. The correct photo did not appear until the April 1933 issue of *American Photography*.

**Now! An Automatic Exposure Meter for Still Camera Work! the ELECTROPHOT**

ELECTROPHOT is incorporated modern science's latest development in accurately measuring light intensity. You simply sight it through the viewfinder and press a button. Instantly, the needle in the dial and short magnetically connected lens setting for a perfect picture!

No guesswork. You don't depend upon the variable reaction of the human eye. ELECTROPHOT is ideal for indoor and outdoor work, for quick shots that leave no time for visual estimating, for color filter and other special work and unusual exposure problems. Begins its work in the saved.

Correct exposure is the most important factor in photography.

—ELECTROPHOT answers it. Compact, simple and quick to operate fits the pocket, weighs about 10 ounces. Complete with genuine leather case, in the U.S. only \$25.00. Good for descriptive folder.

**AMATEUR MOVIE MAKERS**  
There is an ELECTROPHOT made for you. Thousands of you the world over have saved its up-to-date, reliable. Only \$35.00. Includes with case. Good for folder or movie studio.

**See ELECTROPHOT at your dealer's, or order direct from:**  
**J. Theo. Rhamstine\***  
Manufacturer of Precision Electrical Apparatus for 12 years  
445 EAST WOODBRIDGE  
DETROIT, MICH.

FIGURE 14. Model DHA ad from May 1932, adv. 25 in *American Photography*.



FIGURE 15. At the lower right of the Model MS is the cover to the battery compartment but batteries were not longer required.

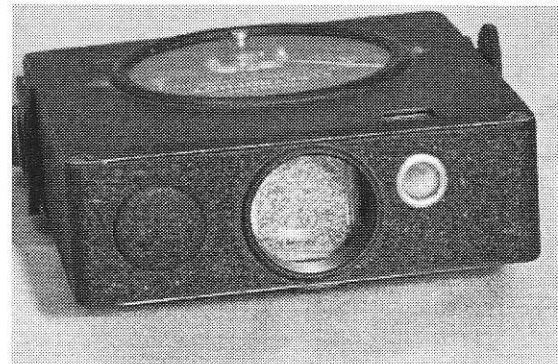


FIGURE 16. The "Rhamstine Electronic Cell" in the Model MS has the shiny appearance of galvanized zinc. To the right is the viewfinder.

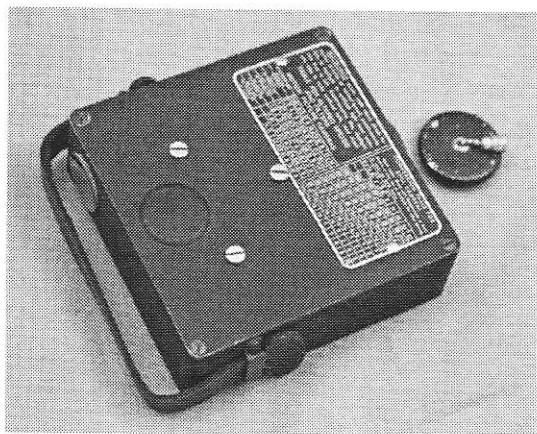


FIGURE 17. The underside of the Model MS has tables for different camera speeds and a table for still camera use. The plug is to protect the cell when the meter was not in use.

**MODELS MSA & MSB.** The meter is now smaller measuring  $2\frac{1}{4}$  wide  $\times$   $3\frac{3}{8}$  high  $\times$   $1\frac{1}{4}$  inches thick. Model MSA has a black dial face and the MSB has a white dial face; there is MSB version with an additional scale for Kodachrome film. A viewfinder is still present. No ads have been located for these two models but a July 1934 mailing of a MSA brochure provides a time frame.



FIGURE 18. A complete example of the Model MSA with box, meter, neck strap, carrying case and instructions.

**MODELS 10, 12, 14, 14A.** Ads for these models appeared from 1938 to 1941. The case measures  $2 \times 2\frac{1}{4} \times \frac{7}{8}$  inches thick and has the Electrophot name above the dial window. The models differ only in the film speeds used; Model 10 has American Scheiner film speeds of 14-29; Model 12 has speeds of 14-35; Model 14 has speeds of 14-35 plus Weston speeds 3-400; Model 14A is just Weston speeds. These and the later models used the more conventional selenium cell, which is a dull gray. There may be some confusion with this model identification key because old components were used on the newer models; i.e. the dial face may say Model 12 yet the calculator dial is for the Model 14.



FIGURE 19. Model 14.

**SUPER ELECTROPHOT.** This was introduced in 1940 with a larger and easier to hold design plus an improved calculator dial.

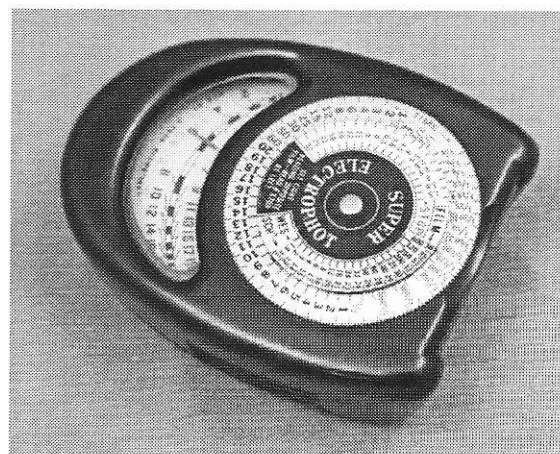


FIGURE 20. Super Electrophot.

**REVISED MODEL 14A.** Adair & Rhamstine made this model when meter production resumed after the war. Only a few ads have been located for 1946, but they were still being sold in 1950 and maybe 1951. Improvements include a better meter magnet and sapphire jeweled bearings.

By now you must have noticed the asterisk or star after Rhamstine's name in the various ads, documents and products. The asterisk in Figure 1 is like a footnote, which in this case calls attention to him as a "Maker of Radio Products." Other ads use "Manufacturer of Radio Products." Rhamstine's ads in *Radio Broadcast* in 1925 also have a star after his name, which referred to the product having been "Tested and approved by Radio Broadcast." The use of a star after his name continued throughout his life.



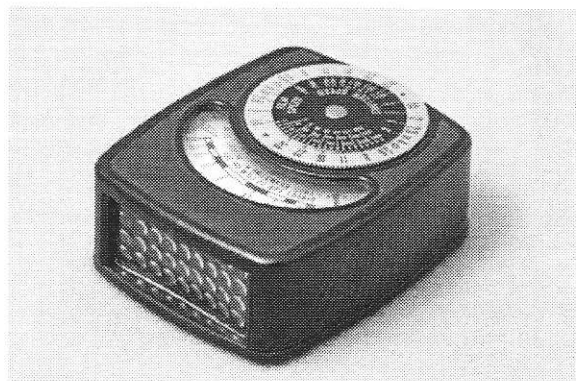


FIGURE 21. The revised Model 14A can be distinguished from the prewar Model 14A by the Electrophot name being on the dial scale and the plastic multilens cover over the cell.

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